

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. – 413 (Cancelled)

414. (New) A fusion protein comprising from amino-terminus to carboxy-terminus: (i) an immunoglobulin binding domain polypeptide that binds CD20; (ii) an altered wild type immunoglobulin hinge polypeptide, wherein a proline in the wild type immunoglobulin hinge polypeptide has been mutated; and (iii) an amino-terminally truncated immunoglobulin heavy chain constant region polypeptide.

415. (New) The fusion protein of claim 414 wherein the binding domain polypeptide comprises an immunoglobulin light chain variable region polypeptide and an immunoglobulin heavy chain variable region polypeptide.

416. (New) The fusion protein of claim 415 wherein the heavy chain variable region further comprises an amino acid substitution at position 9, 10, 11, 12, 108, 110, or 112.

417. (New) The fusion protein of claim 415 wherein the heavy chain variable region further comprises an amino acid substitution at position 11 that is a serine, threonine, cysteine, tyrosine, asparagine, glutamine, aspartic acid, glutamic acid, lysine, arginine, or histidine.

418. (New) The fusion protein of claim 417 wherein the amino acid substitution at position 11 is a serine.

419. (New and Withdrawn) The fusion protein of claim 415
wherein the light chain variable region further comprises an amino acid substitution at position
12, 80, 81, 83, 105, 106, or 107.

420. (New) The fusion protein of claim 414 wherein the binding domain is a
single chain Fv polypeptide.

421. (New and Withdrawn) The fusion protein of claim 414
wherein the immunoglobulin binding domain polypeptide comprises a human or humanized
immunoglobulin variable region.

422. (New) The fusion protein of claim 414 wherein the immunoglobulin
binding domain polypeptide binds CD20 on a tumor cell or a cancer cell.

423. (New) The fusion protein of claim 414 wherein the immunoglobulin
binding domain polypeptide comprises a light chain variable region attached to the heavy chain
variable region by a linker peptide comprising a peptide sequence of Gly-Gly-Gly-Ser (SEQ
ID NO:516).

424. (New) The fusion protein of claim 414 wherein the immunoglobulin
binding domain polypeptide comprises a light chain variable region polypeptide attached to the
heavy chain variable region polypeptide by a linker peptide having amino acids 129-144 as set
forth in SEQ ID NO:246.

425. (New) The fusion protein of claim 414 wherein the amino-terminally
truncated immunoglobulin heavy chain constant region polypeptide comprises a CH2 constant
region polypeptide attached to a CH3 constant region polypeptide.

426. (New and Withdrawn) The fusion protein of claim 425
wherein the CH2 and CH3 constant region polypeptides are an IgA, IgD, or IgG constant region polypeptides.

427. (New and Withdrawn) The fusion protein of claim 414
wherein the amino-terminally truncated immunoglobulin heavy chain constant region polypeptide comprises an IgE CH3 constant region polypeptide attached to an IgE CH4 constant region polypeptide.

428. (New and Withdrawn) The fusion protein of claim 414
wherein the altered wild type immunoglobulin hinge polypeptide comprises an altered human IgG, IgA, or IgE hinge region, or a portion thereof.

429. (New) The fusion protein of claim 428 wherein the altered wild type immunoglobulin hinge polypeptide comprises an altered human IgG₁, IgG₂, IgG₃, or IgG₄ hinge region.

430. (New) The fusion protein of claim 414 wherein the altered wild type immunoglobulin hinge polypeptide has one or two cysteine residues that are amino-terminal to the mutated proline and wherein the proline is substituted with serine.

431. (New) The fusion protein of claim 414 wherein (i) the binding domain comprises a single chain Fv from 2H7, (ii) the altered wild type immunoglobulin hinge polypeptide comprises first, second, and third cysteine residues, wherein the first cysteine residue is amino-terminal to the second cysteine, the second cysteine is amino-terminal to the third cysteine, and the third cysteine is amino-terminal to a proline residue that is substituted with serine, and wherein (a) the first cysteine is substituted with serine, (b) the second cysteine is substituted with serine, (c) the third cysteine is substituted with serine, (d) the first and second cysteines are each substituted with serine, (e) the first and third cysteines are each substituted with serine, (f) the second and third cysteines are each substituted with serine, or (g) the first,

second and third cysteines are each substituted with serine, and (iii) the amino-terminally truncated immunoglobulin heavy chain constant region polypeptide comprises a CH2 and a CH3 domain from IgG₁.

432. (New and Withdrawn) The fusion protein of claim 431 wherein the IgG₁ CH2 constant region polypeptide comprises one or more amino acid mutations at positions 238, 255, 256, 257, 258, 290, 322, 331, and 339.

433. (New and Withdrawn) The fusion protein of claim 431 wherein the IgG₁ CH3 constant region polypeptide comprises one or more amino acid mutations at positions 405 and 407.

434. (New and Withdrawn) The fusion protein of claim 432 wherein the IgG₁ CH3 constant region polypeptide comprises one or more amino acid mutations at positions 405 and 407.

435. (New and Withdrawn) The fusion protein of claim 414 wherein the fusion protein comprises an amino acid sequence as set forth in:

SEQ ID NO:135 (2H7 scFv (CSS-S)H WCH2 WCH3), wherein proline at position 283 is substituted with serine,

SEQ ID NO:137 (2H7 scFv (SCS-S)H WCH2 WCH3), wherein proline at position 283 is substituted with serine,

SEQ ID NO:166 (2H7 scFv (CSC-S)H WCH2 WCH3), wherein proline at position 283 is substituted with serine,

SEQ ID NO:372 (2H7 scFv VHL11S (CSS-S)H WCH2 WCH3),

SEQ ID NO:246 (2H7 scFv VH L11S (CSC-S)H WCH2 WCH3),

SEQ ID NO:370 (2H7 scFv VH L11S (SSS-S)H WCH2 WCH3),

SEQ ID NO:268 (2H7 scFv VH L11S (CSS-S)H K322S CH2 WCH3), or

SEQ ID NO:276 (2H7 scFv VH L11S (CSS-S)H P331S CH2 WCH3).

436. (New) The fusion protein of claim 414 wherein the fusion protein consists essentially of an amino acid sequence as set forth in SEQ ID NO:135 (2H7 scFv (CSS-S)H WCH2 WCH3) wherein proline at position 283 is substituted with serine, SEQ ID NO:166 (2H7 scFv (CSC-S)H WCH2 WCH3) wherein proline at position 283 is substituted with serine, SEQ ID NO:372 (2H7 scFv VHL11S (CSS-S)H WCH2 WCH3), or SEQ ID NO:246 (2H7 scFv VH L11S (CSC-S)H WCH2 WCH3).

437. (New) The fusion protein of claim 414 wherein the fusion protein is 99% identical to the amino acid sequence as set forth in SEQ ID NO:166 (2H7 scFv (CSC-S)H WCH2 WCH3) wherein proline at position 283 is substituted with serine, or SEQ ID NO:246 (2H7 scFv VH L11S (CSC-S)H WCH2 WCH3).

438. (New) A fusion protein comprising from amino-terminus to carboxy-terminus: (i) an scFv binding domain polypeptide that binds CD20, wherein the scFv comprises an immunoglobulin light chain variable region polypeptide consisting of amino acids 23-128 as set forth in SEQ ID NO:689, a linker peptide consisting of amino acids 129-144 as set forth in SEQ ID NO:246, and an immunoglobulin heavy chain variable region polypeptide consisting of amino acids 145-265 as set forth in SEQ ID NO:689, wherein leucine 155 of the heavy chain variable region polypeptide is substituted with serine, (ii) an immunoglobulin hinge polypeptide consisting of amino acids 267-283 as set forth in SEQ ID NO:246; and (iii) an amino-terminally truncated immunoglobulin heavy chain constant region polypeptide consisting of amino acids 284-500 as set forth in SEQ ID NO:246.

439. (New) A pharmaceutical composition comprising a binding domain-immunoglobulin fusion protein according to claim 414 in combination with a physiologically acceptable carrier.

440. (New and Withdrawn) A method of treating a B-cell disorder, comprising administering to a patient a therapeutically effective amount of a fusion protein according to claim 414.

441. (New and Withdrawn) The method of claim 440 wherein the B-cell disorder is a B-cell lymphoma or chronic lymphocytic leukemia.

442. (New and Withdrawn) The method of claim 440 wherein the B-cell disorder is selected from the group consisting of rheumatoid arthritis, systemic lupus erythematosus, type I diabetes mellitus, multiple sclerosis, immune thrombocytopenic purpura, psoriasis, inflammatory bowel disease, Crohn's disease, and ulcerative colitis.

443. (New and Withdrawn) A polynucleotide encoding a fusion protein of claim 414.

444. (New and Withdrawn) An expression vector comprising a polynucleotide of claim 443 operably linked to an expression control sequence.

445. (New and Withdrawn) A recombinant host cell containing a polynucleotide of claim 443.